# ADVANCED FIELD ARTILLERY TACTICAL DATA SYSTEM (AFATDS)

The Advanced Field Artillery Tactical Data System (AFATDS) is a network of computer workstations that processes and exchanges information from the forward observer to the fire support element for all fire support assets (field artillery, mortars, close air support, naval gunfire, attack helicopters, and close air support). Features include the automatic processing of fire requests; generation of multiple tactical fire solutions for missions; monitoring of mission execution; and support for the creation and distribution of fire plans. The Marine Corps has also acquired AFATDS, which is one of the battlefield functional areas comprising the Army Battle Command System (ABCS).

## BACKGROUND INFORMATION

The AFATDS IOT&E in 1995 supported an assessment of operationally effective and suitable for Milestone III. The 1996 AFATDS IOT&E Verification Limited User Test (LUT) confirmed solutions for shortfalls from the IOT&E, except for fire planning, where occasional fire mission deletions and system crashes were observed following transmission of the fire plan. Subsequently, AFATDS 96 software and Common Hardware System (CHS) hardware entered full production and fielding.

AFATDS completed a LUT in October 1997, supporting a material release of AFATDS 97 software on newer CHS platforms. The first operational assessment of AFATDS involving Marine Corps units occurred at Twentynine Palms, CA, in March 1998. The tested hardware and software configurations did not support Marine Corps mobility requirements; however, the participating artillery units considered the automated support provided by AFATDS acceptable.

The AFATDS 98 LUT, a joint Marine Corps and Army event, was conducted in 1998 and examined AFATDS 98 software, the first version developed to address specific Marine Corps requirements, provide theater level targeting, and improve air support functionality. The AFATDS 98 LUT also examined several versions of hardware, including the Compact Computer Unit that reduces system size and weight. The AFATDS 98 Fixes LUT was conducted in 1999 at Fort Sill, OK. This test demonstrated solutions to deficiencies identified in the AFATDS 98 LUT and included air operations, Naval surface fire support, trigger events, fire planning, Multiple Launch Rocket System (MLRS) units, and attack aviation.

## TEST & EVALUATION ACTIVITY

The AFATDS 99 LUT was conducted at Fort Sill, OK, from February to March 2001. The AFATDS 99 LUT's purpose was to evaluate the AFATDS 99 software to support a material release. New functionality tested included technical fire direction of the Battery Computer System for tube artillery, technical fire functionality of the Fire Direction System for the MLRS, tactical interoperability with legacy field artillery systems, and Army and Marine Corps air operations.

An additional test, the AFATDS 99 Fixes LUT, was conducted in September 2001 to retest the deficiencies from the February LUT. The Fixes LUT executed the same scenario in the previous LUT and was conducted at Fort Sill, OK.

## TEST & EVALUATION ASSESSMENT

AFATDS IOT&E in 1995, along with AFATDS 96 software, established the core capability for this program. Initial functionality has been increased with testing and fielding of AFATDS 97 and AFATDS 98. Corrections to all IOT&E identified problems have been demonstrated. The AFATDS 99 adds technical fire direction and was originally intended to evaluate horizontal interoperability with the other ABCS systems (Maneuver Control System, All Source Analysis System, and Force XXI Battle Command Brigade and Below). This part of the test and assessment was postponed until the horizontal integration matured.

The FY01 AFATDS 99 LUT did not adequately demonstrate the technical fire direction functionality of the tube artillery or MLRS. Nor did it demonstrate the capability to conduct adjust fire missions or precision registrations. A contributing factor was the AFATDS operators' general lack of knowledge and understanding of air mission processing. The Army Test and Evaluation Command has not yet published the OA of the September FY01 Fixes LUT. However, preliminary insights show a marked improvement in system and operator performance, but not sufficient to support a material release decision.

The remaining issues include testing of future upgrades within the system-of-systems concept and interoperability with the ABCS as employed in the First Digital Division. The Army has prepared a new TEMP for AFATDS 99 testing, but it needs to be augmented with the AFATDS horizontal testing required to operate with ABCS Version 6 software systems.

The ability to evaluate the ABCS components as individual programs is becoming more difficult as the Army continues to integrate the software and foundation products that comprise these systems, as well as integrate the information into the Common Tactical Picture. An assessment of operational effectiveness and suitability is no longer limited to what the system provides within a single functional area (fire control for AFATDS), but now expands to what does the integration of that information with other functional areas provide to the commander's ability to prosecute the mission. Testing must be done with all the ABCS components present to assess operational effectiveness and suitability. The Department should begin to look for Capstone acquisition, development, testing, and fielding strategies to more effectively and efficiently support, fund, and synchronize the ABCS programs.